

FAIRFAX WATERSHED WATCH

The Newsletter of the Fairfax County Volunteer Water Quality Monitoring Program
Northern Virginia Soil and Water Conservation District
12055 Government Center Parkway, Suite 905 Fairfax VA 22035 (703) 324-1460
Spring/Summer 2003

WATERWAY SIGNS TO APPEAR ON VIRGINIA ROADS

Motorists should be seeing new signs on many of Virginia's highway bridges. Signs denoting a river or stream crossing are being replaced with signs giving the name of the waterway plus the stream's watershed. The new combination signs are the result of an agreement between the Virginia Department of Conservation and Recreation (DCR) and the Virginia Department of Transportation.

Watersheds are all those lands that drain into a particular water body. They are interconnected, with the watersheds for smaller streams making up the watershed for larger bodies of water. Understanding this concept is important to protecting our water quality.

Watersheds connect all of us to our waters. This is a concept that is growing in popularity as policy makers realize that by teaching about watersheds, people learn how their actions can affect local water quality. This can result in being a great support to DCR's efforts to reduce nonpoint source pollution, or runoff.

Actions people take on their lands, such as using fertilizers, removing trees or otherwise disturbing land, can lead to runoff that degrades local waterways. The runoff increases the quantity of water and decreases its quality. By understanding how watersheds connect, people begin to see a cumulative effect of their actions and realize the importance of how they treat their lands. The combination waterway sign is one way DCR makes people aware of these connections.

DCR has worked with VDOT to identify key sign locations on the state's interstates and primary roads and will pay to have existing signs replaced with the new combination signs. Those in the Chesapeake Bay watershed, which makes up more than half the state's landmass, will be paid for with grant funds from the multi-state Chesapeake Bay Program. Initially 30 combination signs are planned statewide.

As interstate and primary road waterway signs are replaced through normal maintenance, combination signs will be used where right-of-way availability allows. The same will be done on secondary roads in counties that pass a resolution requesting the new signs. For informational materials on watersheds and how you can improve local water quality, call DCR toll-free at 1-877-42WATER or you can visit the DCR website at www.dcr.state.va.us. For transportation-related issues, visit the VDOT site at www.virginia-dot.org.

IN THIS ISSUE

Topic	Page
Waterway Signs	1
Reston's Watershed Management Plan	2
Update on Fairfax County SPS	
Fecal Coliform Tracking Study	3
Perennial Stream Mapping Project	3
Adopt-A-Stream	4
Suburban Update	4
Thanks to our Monitors	6
Little Hunting Creek Community Forum	7

RESTON'S WATERSHED MANAGEMENT PLAN

Mary Young

Urbanization has taken a toll on Fairfax County streams. With the large area of paved surfaces and straightened stream channels, heavy storm flows tend to go through the watershed at high velocities, eroding already impaired stream banks, felling trees, damaging infrastructure, and carrying excessive loads of sediment into lakes. This is a problem for individuals living alongside normally quiet streams that turn into raging rivers during rain events. It is a monetary problem when a town or county must replace damaged bridges or walkways, or when lakes must be dredged due to sediment inflow. The Reston Association (RA) has made progressive steps towards repairing these problems.

RA has developed a 10-year Watershed Management Plan designed ultimately to stabilize Reston streams to prevent outrageous peak flows from further degrading local streams and lakes.

Development of a watershed management plan involves multiple tasks. First, extensive fieldwork and data collection followed by data analysis and computer modeling help to prioritize specific problems along specific streams. This data is added to a GIS (mapping) database where it can be displayed, manipulated, and easily modified. All of these steps lead to recommendations to solve the problems.

While most all Reston streams have some degree of degradation, Snakeden Branch and the Glade stream are eroded most severely and carry the highest sediment loads. They also exhibit poor habitat both in-stream and streamside, impaired water quality, and tree loss along stream banks. Computer modeling confirmed that these regions have a high potential for severe erosion and other problems resulting from excessive runoff.

The most expensive and time-consuming watershed improvements will take place along Snakeden

Branch. Stormwater attenuation structures, floodplain spreaders, check dams, and stream restoration are among the projects specifically scheduled along Snakeden Branch for an estimated cost of 1.2 million dollars over six years.

Similar projects are planned for the Glade, but fewer structures and less restoration will be needed. Additionally, plans also are set for three other smaller projects: Lake Anne Tributary, Buttermilk Creek, and Brown's Chapel Creek areas; Lower Snakeden Branch; and Sugarland Run. Total costs for all projects are estimated at over 3.1 million dollars.

Other important recommendations are outlined in the Watershed Management Plan. RA will continue outreach, education, and monitoring programs. Onsite controls, such as Low Impact Development technologies, will be also be implemented to help control stormwater runoff volume. Best Management Practices (BMPs) and retrofits will be implemented to take advantage of natural stream infiltration. Lastly, stream channels will be reshaped and stabilized to accommodate higher flows.

Reston Watershed Action Group (ResWAG), a stakeholders group comprised of Reston citizens and representatives from Fairfax County agencies, monitors the progress of the Watershed Management Plan. ResWAG is committed to educating the Reston Community about the importance of healthy watersheds.

RA received a large grant to enable stream restoration efforts. RA is partnering with the Northern Virginia Soil and Water Conservation District, the Department of Forestry and Fairfax County Department of Public Works and Environmental Services to implement recommendations.

For more information about Reston's Watershed Management Plan, contact Watershed Manager, Diana Saccone, at Diana@reston.org.

FAIRFAX COUNTY'S
STREAM PROTECTION STRATEGY
UPDATES
Charlotte Seid

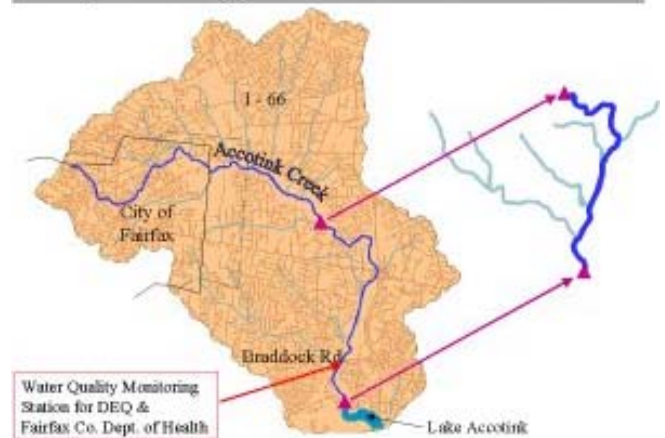
The Stream Protection Strategy (SPS) program was initiated in September 1997, when the Fairfax County Board of Supervisors requested that staff from the Department of Public Works and Environmental Services (DPWES) evaluate the need to implement a comprehensive assessment of County streams. The SPS program monitors the ecological health of County streams based on their biological, physical, and chemical conditions. A comprehensive baseline survey was initiated in 1998 that included monitoring 114 stream segments countywide. This baseline study established the first survey of fish and benthic macroinvertebrate (aquatic insects) communities in the County. The results of the SPS baseline study, published in January 2001, are being used as a tool to help identify and prioritize watersheds for protection and restoration. Future plans for the SPS program include implementing a long-term monitoring program that will assess water quality trends and the effectiveness of management strategies.

Fecal Coliform Tracking Study

In July 2001, the U.S. Geological Survey completed a two-year statewide initiative to determine the source of fecal coliform bacteria in streams. Fecal coliform inhabit the intestinal tracts of warm-blooded animals, and, although the bacteria themselves are not dangerous, they often indicate fecal contamination. Due to this possible health risk, the Fairfax County Board of Supervisors requested that the SPS program monitor fecal coliform in its study.

Three watersheds in the state participated in the bacteria source tracking, including Accotink Creek, where a northern section upstream of Lake Accotink was particularly impaired. According to the initial results, the origins of fecal coliform were 40% waterfowl, 20% human, 13% canine, 5.4% raccoon, 1.4% deer, and 21% other.

Impaired Segment of Accotink Creek



With the final results, the Virginia Department of Environmental Quality (DEQ) will implement a Total Maximum Daily Load (TMDL) for Accotink Creek. A TMDL will identify contaminant sources and minimize the amount of pollution in order to meet water quality standards. Throughout the study, citizens in the watershed attended three public meetings to learn about the project and provide input. With the support of the Fairfax County Department of Health, the Department of Public Works and Environmental Services, and the community, the USGS study hopefully will contribute to the restoration of Accotink Creek and other watersheds. For more information, visit www.fairfaxcounty.gov/gov/DPWES/environmental/SPS_Initiatives.htm.

Perennial Stream Mapping Project

Streams are classified into three categories based on their sources, flow, and biology: perennial, intermittent, and ephemeral. While ephemeral streams exist only to channel rainwater during storms, and intermittent streams dry up during minor droughts, perennial streams flow continuously throughout the year and are sustained by groundwater as well as surface runoff. Perennial streams are not dependent on weather conditions and only cease to flow during hydrologic drought, when the water table sinks below the level of the

streambed. Their well-defined channels and stable flow allow perennial streams to foster aquatic life, such as fish and macroinvertebrates.

As a part of the extensive Chesapeake Bay watershed, Fairfax County enacted a Chesapeake Bay Protection Ordinance (CBPO) to protect the bay and its tributaries. In accordance with the current CBPO, only the perennial streams identified on USGS maps are protected within Resource Protection Areas (RPAs), which contain the land within 100 feet of a stream and major floodplains. These vegetated regions "buffer" the stream from nutrients, sediment, and polluted runoff from developed areas. The Fairfax County Environmental Quality Advisory Council (EQAC) expressed concern that the existing maps were unreliable and did not include many perennial streams entitled to RPAs and CBPO protection.

Using scientifically accurate protocols, the Fairfax County Stormwater Planning Division will identify and map perennial streams by evaluating their channel structure, water, and biology. The perennial stream project began in March 2002 and will continue for the next two years. The Stormwater Planning Division already has tested the protocol in five watersheds. In 2004, the Board of Supervisors will consider the final map; the County currently is producing an interim map with an extrapolation for unmapped watersheds. Developers in these areas will be required to confirm the perennality or intermittency of the streams.

Fairfax County has also revised its CBPO to comply with Virginia's amended Chesapeake Bay Preservation Area Designation and Management Regulations. The new CBPO, effective in March 2003, included all perennial streams in RPAs. Once completed, the perennial stream mapping project will ensure protection of our valuable local streams and the Chesapeake Bay. A detailed summary of the project is available at www.fairfaxcounty.gov/dpwes/watersheds/perennial.htm.

Adopt-A-Stream



Are you interested in protecting and caring for your local stream? It is easy to sign up for the Virginia Adopt-A-Stream Program, a movement to reduce litter, educate the community, and raise citizen awareness of our water resources. Groups adopt a half-mile (or longer) section of a stream or river and conduct one cleanup each year for two years. A two-person team easily can finish this length in only an hour. Often, experienced groups conduct both a summer and fall clean-up. To get involved, contact the Virginia Department of Conservation and Recreation (DCR).

SUBURBAN UPDATE

Ivy Main

Private rights, public rights, and a sledgehammer. Here in the suburbs, we are very concerned about protecting property rights. We are also concerned about preserving the environment. In other settings these terms mean different things to different people, but around here they have specific definitions.

Anyone talking about "property rights" is almost certainly referring to his ability to make as much money as possible by selling his property to developers. Those who talk about "preserving the environment," on the other hand, are usually the neighbors of someone who just started championing his property rights.

Which side you're on depends on whether you're trying to make a bundle, or just live here.

It's easy to see why the neighbors get upset. Sure, sometimes their real interest is less about the environment, and more about their enjoyment of their own property, but they're still the ones left holding the bag when development adds to pollution, traffic and school crowding.

But there must be a lot of sympathy out there for the guys who want to sell out and make a bundle, because they seem to succeed so often. This is true even though they almost always need a zoning variance, which in theory means the community can say no.

This is a subject I think about every January, when I set about swiping discarded Christmas trees from neighborhood driveways before the trash trucks can get them. Come March, I will be staking the trees into the eroded banks of Pimmit Run, as part of what is optimistically termed a stream restoration program.

In fact, Pimmit Run may be too degraded for me to succeed, even along the one small stretch in back of my house. Like most of the streams in Fairfax County, where I live, it ranks in fair-to-poor condition. The culprit is sediment, caused by erosion—a direct result of development in the surrounding community.

In a natural setting, trees and undergrowth absorb rainwater, slowing the flow of water into streams. Development removes the trees and sends larger volumes of water directly into the streams. Too much water coming in at once overwhelms the stream system. Chunks of bank start giving way under the pressure. The exposed earth is even more vulnerable, and the erosion accelerates. The results are pretty ugly—but even at its worst, an unchanneled stream is one of nature's glories. With its valleys and floodplains, it is the often-overlooked lifeblood of the natural community. Even an inside-the-Beltway stream like the Pimmit is home to great blue herons, beaver, kingfishers, and ducks.

So, degraded or not, everyone living in the stream's watershed -- and all of those downstream, too, where the sediment and other pollutants end up -- has an interest in preventing further damage to the stream.

This is not generally what you want to hear when you're thinking of exercising your property rights. Sure, these days, builders know how to develop land in ways that send less water pouring into streams, but that takes planning and effort. Worse, it can be inconsistent with profit maximization. And not making as much money as you hoped for is only a few steps removed from being deprived of your property completely - which, of course, is unconstitutional.

Therefore (bear with me now: the logic is tricky, but the emotions are raw and the volume is loud), you ought to be able to claim some kind of constitutional right to find a loophole that will get you out of having to protect a stream, while still getting your zoning variance.

It's an argument that has its backers. Whole national organizations devote their lobbying energies to the idea that property owners should be able to do anything they want, regardless of the results. It's probably a mere coincidence that the people who fund these groups tend to be developers, mining companies, and the like, rather than, say, suburban homeowners.

For my own part, the more time I spend thigh-deep in water trying to secure Christmas trees with metal stakes, yards of cable, and a sledgehammer, the less convinced of their rights I become. There's nothing quite like cold mud and a few smashed fingers to personalize an issue.

In fact, when a fine old maple tree recently fell victim to the erosion, I couldn't help thinking about the kind of property rights that get less attention: the right not to have one's property destroyed by the actions of others. It doesn't matter whether it's my property or the public's, whether it's a stream or the air we breathe. We have the right to say no.

*From the Northern Virginia Journal,
June 9, 2003.*

RECENTLY CERTIFIED MONITORS

Burt Weisman
Cathy Saunders
Darin Grulkowski
David Lansbury
Jo Acosta *
Joe Chudzik
Laura Breeden*
Robert Andrews
Sean Conley
Stefanie Kline

(*Impaired stream
certified)

OUR SPRING 03 MONITORS

Adrian Abraham
Amy Penn
Bob Jordan
Brett Moody
Bob Bidwell
Brian Falatko
Brian Petty
Carol Hadlock
Casey Arnold
Dan Jordan
David Lansbury
Deana M. Demichelis
Debra Falatko
Diana Saccone
Doug Errett
Ed Grace
Elizabeth Rhein
Erica Schmidt
Fran Grace
Haeri Kang
Hanna Kang
Helen Schwerdt
Jamie Argueta
Jenny Moore

Jill Lucy
Joanne Kao
Joella Adams
Josh Hauptman
Josh Henry
Jud Harvey
Karen M. Whitten
Kathy Swoboda
Ken Andrews
Kim Zuber
Kimra McAfee
Laura Breeden
Lisa Moore
Mai-Lan Aram
Martha Scholl
Milton Hahn, Jr.
Nancy Tray
Nathan
Nora Jordan
Pete Schirmer
Rebecca Gaspard
Robinson HS students
Roger Swoboda
Ron Marafioti
Samantha Zuber
Sean Kluckman
Sharon Henry
Sheila McConnell
Sonny Duong
Stefanie Kline
Stephanie Dawkins
Steve Falatko
Suzanne Dorick

OUR SUMMER 03 MONITORS

Alex Kim
Allison Austin
Amr Majul
Amy Noack
Andrew Kim
Anita Pease
Anna Roherty
Barbara Townsend

Beth Stein
Bob Bidwell
Brian Falatko
Brian Petty
Burt Weisman
Carol Badilla
Carol Hadlock
Cathy Saunders
Chris Ruck
Christine Okano
Dale McGrath
Daren Carlisle
Dan Veltri
Dave Greenacre
Deana Crumbling
Deana M. Demichelis
Diana Saccone
Dorris Martin
Ed Grace
Ellie Coddling
Emily Martin
Fran Grace
George Crump
Ivy Main
Jacob Henry
Janet Feutz
Jeff Beaupre
Jeff Cornell
Jennifer Norman
Jim McGlone
Joanie Engel
Joella Adams
Joanne Kao
Julie Kim
Karen Stein-Monroe
Katherine Connors
Ken Andrews
Kim Angeli
Krystal Kearns
Llewelyn Engel
Laura Grape
Lori Seeley
Lucy Seeley
Mai-Lan Aram
Manish Bhartiya

Mark Miller
Martha Scholl
Mike Norvell
Mitch Martin
Nancy Tray
Natalie Gozzerd
Paul F. Gardner
Rick Marks
Robert Andrews
Ron Marafioti
Sally Meyer
Sean Kluckman
Sharon Henry
Stefanie Kline
Steve Falatko
Stuart Carter
Sue Beffel
Suzanne Dorick
Sylvia Carvett
Ted Moline
Teresa Dean

Newsletter Contributors

Ivy Main, Monitor
Mary Young, Volunteer
Stefanie Kline, Intern
Charlotte Seid, Intern
Lindsay Majer,
Volunteer
Jackie Puretz, Volunteer



*Fairfax Fair 2003.
Teaching kids and
adults about Fairfax
bugs and fish.*

**LITTLE HUNTING CREEK COMMUNITY
WATERSHED FORUM***Charlotte Seid, Intern**Edited by Andi Ceisler*

“Fairfax County is ahead of everyone else...we care...we are doing something about our streams.” With these words of encouragement and optimism, Mount Vernon District Supervisor Gerry W. Hyland welcomed almost 100 concerned citizens to Fairfax County’s first community watershed forum, held on July 19, 2003, at Carl Sandburg Middle School.

Little Hunting Creek, bordering the Potomac River at the southeastern end of the County, is the first of 30 watersheds to hold a public forum in which citizen input will help develop a watershed plan.

The Fairfax County Department of Public Works and Environmental Services (DPWES) cited five compelling reasons to create watershed plans. First, watershed management plans are instrumental in preserving and restoring our county’s streams—according to the 2001 Stream Protection Strategy Baseline Study, 70% of streams were rated fair, poor, or very poor. Second, Fairfax County must meet water quality standards set by state law and the Federal Clean Water Act. Third, clean watersheds in Fairfax County contribute to a healthier Chesapeake Bay. As part of the most recent restoration agreement, Chesapeake 2000, two-thirds of the Bay’s watersheds must have management plans by 2010. Fourth, a new plan, using the latest technology to solve current problems, will replace the outmoded ones of the 1970’s. Finally, a comprehensive watershed plan, integrated with management strategies such as planning and zoning, will address a variety of related environmental goals.

The issues of highest priority for Little Hunting Creek included sedimentation, riparian buffer loss, paved land cover, wetland loss, and polluted runoff. Sedimentation degrades the habitat of fish and macroinvertebrates, reduces stream navigability, and creates hazardous flood conditions. Riparian

buffer loss magnifies the effects of polluted runoff, for when vegetation is removed, a stream loses its habitat, shade, and natural filtration. Paved land cover further increases runoff and threatens aquatic life—the Little Hunting Creek watershed currently stands at 22% impervious surfaces and is expected to rise to 47%. Imperviousness of 10% or less is considered acceptable to maintain a healthy watershed. Wetlands, accounting for 168 acres (2% of the watershed), slow and filter stormwater but are endangered by urban development.

The forum opened with a Watershed Academy of six presentations, each explaining a different aspect of Virginia’s streams. Karen Firehock, of the University of Virginia’s Institute for Environmental Negotiation, said that the watershed plan will not be simply “decide, announce, and defend.” The citizens who know where the problems are will be a part of the planning and implementation processes. Firehock said a first draft of the Little Hunting Creek watershed plan will be released in October and a second draft in the spring of 2004. To find a complete schedule for meetings in 2003 and other project information, go to www.fairfaxcountywatersheds.net. The choices related to this living document will be made by the community, with data from SPS, DEQ, the steering committee, and volunteer monitoring as a scientific basis. A first draft of the Little Hunting Creek watershed plan will be released in October and a second draft in the spring of 2004.

Laura Grape, a biologist on the County’s Stream Protection Strategy team, explained Stream Function, Form, and Evolution from the headwaters to the sea. Ephemeral and intermittent streams, considered “first order,” carry runoff at the headwaters. When two first order streams converge, they form a more stable second order stream. Aquatic life follows a similar continuum; leaves and organic matter in first order streams are food for downstream macroinvertebrates, which are preyed upon by fish in deeper waters. Humans, too, are connected to the streams that provide recreation, navigational corridors, and—perhaps most

importantly—drinking water from the Potomac River and Occoquan Reservoir. Conversely, humans affect aquatic life through land use activities. Land development, overuse of fertilizers and pesticides, and improper waste disposal harm the streams and the life they support.

Shelly Frie, Project Manager of Woolpert LLP, discussed Stormwater Management. She emphasized how management techniques control the volume and peak rate of runoff, thus preventing damage to property and aquatic resources. She described the advantages and drawbacks of a variety of best management practices, including wet and dry ponds, bioretention basins, vegetated filter strips, and porous pavement. Frie also discussed better site design, which protects sensitive streams, reduces maintenance and cost, and balances the environment with urban growth. In contrast to past approaches that aimed to transport stormwater offsite as quickly as possible to streams, practices such as Low Impact Development (LID) manage runoff at its source using small-scale controls. Specific techniques range from parking lot bioretention islands and reduced street width to green roofs.

Cliff Fairweather, Water Quality Program Coordinator for the Audubon Naturalist Society, explained how poor watershed management affects aquatic organisms. Benthic macroinvertebrates, which feed on plant matter and sustain many predators, are a critical link in a stream's food chain. Fairweather remarked, "macros do the trick of turning dead leaves into kingfishers." Unfortunately, when rainwater flows over manmade paved surfaces, the temperature of the runoff rises, decreasing a stream's dissolved oxygen and lowering species diversity. This runoff also carries pollutants ranging from pesticides to motor oil. Erosion from streams and construction sites causes an influx of sediment, which accumulates downstream and buries macroinvertebrate habitat. The depletion of these insects can have international consequences, since they make up an important part of the diet of some migratory birds.

Asad Rouhi, Urban Conservation Engineer for the Northern Virginia Soil and Water Conservation District, compared stream restoration and stabilization. Restoration of a stream requires seeking multiple permits, removing trees from the banks, and creating a new cross section, pattern (meander), and slope for the stream.

Stabilization works within the existing channel, stabilizing locations where stream bed and bank erosion is an issue. This simpler process allows volunteers to assist. Stabilization projects may require permits, depending on the location. Rouhi recounted the success of a stabilization project on Wolftrap Run at Cinnamon Creek, where significant erosion had threatened trees and a trail and had caused excessive sedimentation. The project effectively and economically used rock structures, vegetation, and biodegradable logs to stabilize a newly graded stream bank and divert the stream flow away from the stress points on the bank.

Lastly, Katherine Mull, Northern Virginia Regional Commission's Senior Environmental Planner, discussed comprehensive planning and zoning for stream protection. Comprehensive planning directs land use, which in turn affects water quality. According to Mull, incentives are needed to encourage environmentally friendly development as well as public acceptance and understanding by decision makers. "Stream protection is based on science, but not every policy-maker is a scientist," said Mull. "Policy-makers must understand the implications of their decisions. Every decision is important in setting a precedent for the future."

The forum was successful in educating the public, generating support for the watershed, and setting a standard for subsequent meetings in the County's other 29 watersheds. Informative and organized, the presenters provided valuable background information, while discussion groups allowed the community to contribute ideas, opinions, and concerns—for it is the community who is responsible for Little Hunting Creek's future.